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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,438

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Toshio Sugiura

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OLIFF & BERRIDGE, PLC

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EXAMINER

CULLER, JILL E

ART UNIT

PAPER NUMBER

2854

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/809,438

Applicant(s)

SUGIURA, TOSHIO

Examiner

Jill E. Culler

Art Unit

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14, 15 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 14, 15 and 26-31 is/are rejected.
- 7) ☒ Claim(s) 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 11, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,580,042 to Taniguro et al. in view of U.S. Patent No. 6,712, 357 to Tranquilla and U.S. Patent No. 5,182,861 to Suzuki et al.

With respect to claims 1-4, Taniguro et al. teaches a recording medium conveying device, 112, that conveys a recording medium to a recording area comprising a pair of first conveyor rollers, 136, 137, that are provided upstream of and adjacent to the recording area and convey a recording medium by nipping the recording medium therebetween, no roller being disposed between the pair of first conveyor rollers and the recording area, and a detector, 142, that detects a position of the recording medium. See column 7, line 61 to column 8, line 8 and Figure 8.

Taniguro et al. does not teach that the detector detects a distance from the pair of first conveyor rollers to a trailing edge of the recording medium and thereby a position of the recording medium in accordance with a distance of the recording medium conveyed by the pair of first conveyor rollers; a nipping force changing unit that changes the nipping force of the pair of first conveyor rollers; or a controller that controls an operation of the nipping force changing unit in accordance with the position of the

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recording medium detected by the detector and allows the nipping force changing unit to reduce the nipping force of the pair of first conveyor rollers, step by step, in accordance with the detection result of the detector.

Tranquilla teaches a recording medium conveying device, comprising: a pair of first conveyor rollers, 114, 116, that are provided upstream of and adjacent to the recording area and convey a recording medium by nipping the recording medium therebetween; a detector, 122, that detects a distance from the pair of first conveyor rollers to a trailing edge of the recording medium and thereby detects a position of the recording medium in accordance with a distance of the recording medium conveyed by the pair of the first conveyor rollers; a nipping force changing unit, 152, that changes the nipping force of the pair of first conveyor rollers; and a controller, 154, that controls an operation of the nipping force changing unit in accordance with the position of the recording medium detected by the detector and allows the nipping force changing unit to reduce the nipping force of the pair of first conveyor rollers, step by step, in accordance with the detection result of the detector. See column 3, lines 33-61, column 4, lines 19-36, column 5, lines 36-60, and Figure 3a.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the conveyor rollers of Taniguro et al. to have the nipping force changing unit and controller of Tranquilla in order to be able to remove the pinch force from the document during document processing, preventing external forces from affecting the positioning of the document.

Taniguro et al. does not teach that the nipping force changing unit includes a cam member, a cam follower that contacts the cam member, a spring that contacts the cam follower and an arm that includes a receive portion and a roller holder portion, the receive portion receiving a force related to a position of the cam follower via the spring and the roller holder portion holding a one of the pair of first conveyor rollers and a support shaft that rotatably supports the arm.

Suzuki et al. teaches a nipping force changing unit for a pair of conveyor rollers, 20, 44, including a cam member, 58, a cam follower, 54, that contacts the cam member, a spring, 56, that contacts the cam follower, the cam follower being disposed between the cam member and the spring, and an arm, 40, that includes a receive portion and a roller holder portion, the receive portion receiving a force related to a position of the cam follower via the spring and the roller holder portion holding one of a pair of conveyor rollers, 44, and a support shaft, 36, that rotatably supports the arm. See column 3, lines 1-50 and Figs. 3-4 in particular.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the nipping force changing unit structure, as taught by Suzuki et al., in order to have consistent, intermittent change of the nipping force.

With respect to claims 5 and 6, Taniguro et al. does not teach a driver that drives the pair of first conveyor rollers, wherein the controller controls the driver so as to intermittently drive the pair of first conveyor rollers, or that the controller allows the

nipping force changing unit to change the nipping force while the pair of first conveyor rollers are not driven.

Tranquilla teaches a driver, 158, that drives the pair of first conveyor rollers, wherein the controller controls the driver so as to intermittently drive the pair of first conveyor rollers, see column 3, lines 58-66, and that the controller allows the nipping force changing unit to change the nipping force while the pair of first conveyor rollers are not driven. See column 3, line 66 - column 4, line 9.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the driver and controls of Tranquilla to improve control over the nipping force

With respect to claims 7 and 11, Taniguro et al. teaches a pair of second conveyor rollers, 59, 61, that are provided downstream of the pair of first conveyor rollers and convey the recording medium, which is conveyed from the pair of first conveyor rollers, by nipping the recording medium therebetween.

Taniguro et al. does not teach that the driver drives the pair of second conveyor rollers together with the pair of first conveyor rollers, or that the controller corrects the conveying distance of the recording medium by the pair of second conveyor rollers when the recording medium is released from the nipping of the pair of first conveyor rollers

Tranquilla teaches a pair of second conveyor rollers, 118, 120, that are provided downstream of the pair of first conveyor rollers and convey the recording medium, which is conveyed from the pair of first conveyor rollers, by nipping the recording medium

therebetween, wherein the driver drives the pair of second conveyor rollers together with the pair of first conveyor rollers. See column 3, lines 48-53. Tranquilla also teaches the controller corrects the conveying distance of the recording medium by the pair of second conveyor rollers when the recording medium is released from the nipping of the pair of first conveyor rollers. See column 4, lines 36-64.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the controls of Tranquilla to improve control over the printing medium as it is transported.

With respect to claim 8, Taniguro et al. does not teach a condition change determining unit that determines whether a current condition is going to be changed by a next intermittent driving of the pair of first conveyor rollers performed by the driver, from a condition where the recording medium is conveyed by both the pairs of first and second conveyor rollers to a condition where the recording medium is conveyed by the pair of the second conveyor rollers only, wherein when the condition change determining unit determines that the current condition is going to be changed to the condition where the recording medium is conveyed by the pair of the second conveyor rollers only, the controller reduces the nipping force of the pair of first conveyor rollers during the next driving of the first conveyor rollers, by means of the nipping force changing unit.

Tranquilla teaches a condition change determining unit that determines whether a current condition is going to be changed by a next intermittent driving of the pair of first conveyor rollers performed by the driver, from a condition where the recording

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medium is conveyed by both the pairs of first and second conveyor rollers to a condition where the recording medium is conveyed by the pair of the second conveyor rollers only, wherein when the condition change determining unit determines that the current condition is going to be changed to the condition where the recording medium is conveyed by the pair of the second conveyor rollers only, the controller reduces the nipping force of the pair of first conveyor rollers during the next driving of the first conveyor rollers, by means of the nipping force changing unit. See column 4, lines 36-64.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the condition change determining unit of Tranquilla to improve control over the printing medium as it is transported.

With respect to claim 9, Taniguro et al. does not teach the nipping force changing unit releases the recording medium from the nipping force of the pair of first conveyor rollers or reduces the nipping force of the pair of first conveyor rollers to a strength smaller than a maximum conveying force of the pair of first conveyor rollers that can be transmitted to the recording medium.

Tranquilla teaches the nipping force changing unit releases the recording medium from the nipping force of the pair of first conveyor rollers or reduces the nipping force of the pair of first conveyor rollers to a strength smaller than a maximum conveying force of the pair of first conveyor rollers that can be transmitted to the recording medium. See column 4, lines 4-9.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the controls of Tranquilla to improve control over the printing medium as it is transported.

With respect to claims 26-31 Taniguro et al. does not teach that the spring is disposed between the cam follower and the receive portion, which is disposed at an end of the arm, the cam member includes an eccentric cam, the cam follower moves in an urging direction substantially perpendicular to a plane which includes both axes of the pair of first conveyor rollers, the support shaft supports a portion disposed between the receive portion and the roller holder portion and a stopper limits the movement of the arm.

Suzuki et al. teaches a nipping force changing unit in which the spring, 56, is disposed between the cam follower, 54, and the receive portion, which is disposed at an end of the arm, 40, the cam member includes an eccentric cam, 58, the cam follower, 54, moves in an urging direction substantially perpendicular to a plane which includes both axes of the pair of first conveyor rollers, the support shaft, 36, supports a portion disposed between the receive portion and the roller holder portion and a stopper limits the movement of the arm.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the particular nipping force changing unit structure, as taught by Suzuki et al., in order to have consistent, intermittent change of the nipping force.

3. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguro et al. in view of Tranquilla as applied to claims 1-9, 11 and 26-31 above, and further in view of U.S. Patent No. 4,619, 451 to Dodge.

Taniguro et al. and Tranquilla teach all that is claimed, as in the above rejection of claims 1-9, 11 and 26-31, except that the pair of first conveyor rollers and the nipping force changing unit includes a plurality of pairs of first conveyor rollers and nipping force changing units which are disposed in a direction perpendicular to a recording medium conveying direction and symmetrical with respect to a center line of the recording medium in a width direction of the recording medium, and the controller controls the forces to be all the same strength or allows the nipping force changing unit to reduce the nipping force of a pair of first conveyor rollers disposed at a position further from a center of the recording medium in the width direction, prior to a pair of first conveyor rollers disposed at a position near the center of the recording medium.

Dodge teaches a plurality of pairs of conveyor rollers, 6, 7, and nipping force changing units, 15, which are disposed in a direction perpendicular to a recording medium conveying direction and symmetrical with respect to a center line of the recording medium in a width direction of the recording medium, and are controlled such that the nipping forces are all of the same strength or that the nipping force is reduced in a pair of first conveyor rollers disposed at a position further from a center of the recording medium in the width direction, prior to a pair of first conveyor rollers disposed at a position near the center of the recording medium. See column 2, lines 40-61 and column 3, lines 3-19.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the invention of Taniguro et al. to use the plurality of rollers and nipping force changing units, as taught by Dodge, in order to have adjustable control of the nipping force across the width of the recording medium.

Allowable Subject Matter

4. Claims 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: With respect to claim 35, the prior art does not teach or render obvious a recording medium conveying device as claimed, particularly wherein the cam follower further includes a middle piece that defines a first recessed regulating portion in which the cam is disposed and a second recessed regulating portion in which an end portion of the arm and spring are disposed.

With respect to claim 36, the prior art does not teach or render obvious a recording medium conveying device as claimed, particularly comprising the cam follower fixed to a drive shaft and a bracket that includes a slot extending in a sub-scanning direction parallel to the feed direction of the print medium which suitably guides the drive shaft.

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5. Claims 10 and 32-34 allowed. The following is an examiner's statement of reasons for allowance:

With respect to claim 10 the prior art does not teach or render obvious a recording medium conveying device as claimed particularly including that a conveying distance of the recording medium by the pair of first conveyor rollers at an intermittent conveyance is gradually reduced proportional to an advance of the recording medium.

With respect to claim 32, the prior art does not teach or render obvious a recording medium conveying device as claimed particularly including a stopper moveable between a first position at which the stopper contacts the arm and a second position at which the stopper does not contact the arm the stopper limiting a position of the arm when the stopper is at a first position.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571) 272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec

Julie E. Allen
Primary Examiner